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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,089	07/07/2003	Larry Lee Wolff	0101	5101

32366 7590 09/14/2006

BRUCE E. WEIR
12 SPARROW VALLEY COURT
MONTGOMERY VILLAGE, MD 20886-1265

EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/613,089	Applicant(s) WOLFF ET AL	
	Examiner Nathan W. Ha	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 33-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, claim 33 recites the entire surface disposed within 5 mils, and claim 34 recites the entire lower surface of aperture member disclosed within 2 mils of the radiation sensitive portion. These newly added limitations render new matter. As a result, for the examination purposes these limitations are treated as non-critical features.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-30, 32, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow et al. (US 6,667,543, previously cited, hereinafter Chow.)

In regard to claims 1, 11, 20, 32, and 35, in fig. 3, Chow discloses a method comprising:

bonding an optical semiconductor element 22 to a lead frame 12, the optical semiconductor element having a radiation-sensitive portion 26;

applying a transparent adhesive element 38 to at least the radiation-sensitive portion; and

applying an aperture member 40 to the transparent adhesive element, the aperture member having a lower surface in contact with only the transparent adhesive element, shown in fig. 3.

In regard to claim 2, Chow further discloses bonding an optical semiconductor element to a lead frame, the optical semiconductor element having a radiation-sensitive portion as mentioned above;

Selecting an aperture member; and

applying the aperture member to the transparent adhesive element. See above discussions.

In regard to claims 3, 12, and 21, wherein the aperture member is selected for at least one physical characteristic.

In regard to claims 4, 13, and 22, wherein the aperture member is selected and applied to the transparent adhesive element by a programmable pick-and-place

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semiconductor assembly machine, dispensing system, for example. See col.4, lines 62-64.

In regard to claim 5-6 and 14-15, wherein the optical semiconductor element is bonded to the printed circuit board with a bonding agent, an adhesive tape 24. See fig. 1.

In regard to claims 7, 16, and 27, Chow discloses the additional step of bonding at least a first connecting electrical conductor 32 between at least a first circuit contact 30 on the optical semiconductor element and at least a first lead 18 on the lead frame. See fig.1.

In regard to claims 8, 17, and 28, wherein the first connecting electrical conductor comprises a wire 32 fabricated from a metal elected from of gold. See col.4, lines 20-21.

In regard to claims 9, 10, 18-19, and 29-30, Chow further discloses additional step of encapsulating the optical semiconductor element, the transparent adhesive element, and the aperture member with an encapsulating agent, resin, 42, or 48. See col.5, line 1. See also, col.6, lines 36-38.

In regard to claim 24, the substrate, lead frame, provides an electrical conductor. See fig. 1.

In regard to claims 25 and 26, wherein the optical semiconductor element is bonded to the substrate with a bonding agent 24, adhesive. See col. 4, line 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chow as applied to claims 1-30 above, and further in view of Hoffman, US 6,603,183, previously cited.

7. In regard to claim 31, Chow discloses all of the claimed limitations as mentioned above except a step of attaching solder balls to the substrate.

Hoffman, in fig. 1, discloses an analogous semiconductor package, optical device, with optical chip 108 on a substrate 102, bonding wires 118. Hoffman further discloses a step of attaching solder balls 126A to the substrate in order to carry out electrical connections from the chip to the external devices since the shape of the solder ball, round, eases the electrical contacts. See also col.5, lines 35-50.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach electrical connection device such solder balls in order to carry out electrical connections from the chip to the external devices since the shape of the solder ball, round, eases the electrical contacts.

8. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chow as applied to the above claims.

In regard to claims 33 and 34, and in accordance with the 112 rejection above, Chow discloses all of the claimed limitations, except the thickness, or dimension of the adhesive element, for example.

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the thickness because applicant has not disclosed that these thicknesses provide an advantage, is used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either shape because they perform the same function of positioning the module to the substrate.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Chow to obtain the invention as specify in the above claims.

Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a

claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Response to Arguments

9. Applicant's arguments filed 11/30/05 have been fully considered but they are not persuasive. For instance, the Applicants argue that the cited reference, Chow, does not disclose the lower surface is in contact only with the transparent adhesive element. This feature is found in Chow's figure 3, wherein element 46 is in contact only with adhesive 38. It should be further noted that figure 1 of Chow depicts another embodiment, which has spacer 34 in between.

Applicants further submit that claim 18 was not addressed in the previous rejection. The heading in the previous office action (page 2, section 2) included claim 18, and the language of the claim 18 is the same as claim 9, which is rejected under 102 by Chow. Therefore, the limitation of claim 18 is indeed taught by Chow. See also above discussion.

Conclusion

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

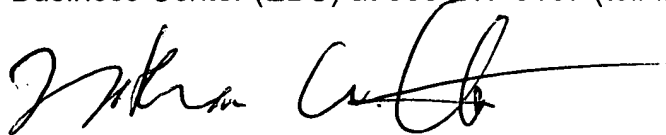
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Nathan W. Ha', with a long horizontal flourish extending to the right.

Nathan Ha
September 06, 2006